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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,787	07/15/2003	Jong-Hun Lee	5000-1-324	7884
33942	7590	10/20/2004	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			BHAT, ADITYA S	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<p>Application No.</p> <p align="center">10/619,787</p>	<p>Applicant(s)</p> <p align="center">LEE ET AL.</p>	
	<p>Examiner</p> <p align="center">Aditya S Bhat</p>	<p>Art Unit</p> <p align="center">2863</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7,9-11,13-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 4,8,12 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/> Paper No(s)/Mail Date _____</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/> Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|--|---|

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 9-13 and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by VanHoudt (USPUB 2002/0121094).

With regards to claim 1, VanHoudt (USPUB 2002/0121094) teaches a low heat-generating temperature compensation device that allows an optical communication device to have a constant temperature characteristic regardless of change of environmental temperature, the low heat-generating temperature compensation device comprising:

a temperature sensor that detects a temperature at which the optical communication device is used; (Page 3, Paragraph 0029)

a temperature comparison unit that performs digital signal processing of a signal corresponding to the detected temperature and a signal corresponding to a reference temperature of the optical communication device and then generates a digital error value which represents the difference between the two signals; (Page 3, Paragraph 0035 & 0037)

a D/A converter that converts the digital error value of the temperature comparison unit into an analog signal; (Page 4, Paragraph 0036)

a temperature control unit that controls the temperature of the optical communication device on the basis of a temperature compensation signal; (Page 3, Paragraph 0035) and

an analog PID control unit that receives the analog signal and performs PID control using an analog method to generate the temperature compensation signal so as to urge the digital error value to zero. (Page 3, Paragraph 0035)

With regards to claim 9, VanHoudt (USPUB 2002/0121094) teaches a low heat-generating temperature compensation device, which allows an optical communication device to have a constant temperature characteristic regardless of change of environmental temperature, the low heat-generating temperature compensation device comprising:

a temperature sensor that detects temperature at which the optical communication device is used; (Page 3, Paragraph 0029)

a temperature comparison unit that generates a digital error value which represents the difference between a signal corresponding to the detected temperature and a signal corresponding to a reference temperature of the optical communication device; (Page 3, Paragraph 0035)

a temperature control unit that controls the temperature of the optical communication device on the basis of an analog temperature compensation signal; (Page 3, Paragraph 0035)

a D/A converter that converts a digital temperature compensation signal into the analog signal; (Page 4, Paragraph 0036)and

a digital PID control unit that receives the digital error value and performs PID control using a digital method to generate the digital temperature compensation signal so as to urge the digital error value to zero. (Page 3, Paragraph 0035)

With regards to claim 13, VanHoudt (USPUB 2002/0121094) teaches a low heat-generating temperature compensation method that allows an optical communication device to have a constant temperature characteristic regardless of change of environmental temperature, the low heat-generating temperature compensation method comprising the steps of:

detecting a temperature at which the optical communication device is used, (Page 3, Paragraph 0029) and performing digital signal processing of a signal corresponding to the detected temperature and a signal corresponding to a reference temperature of the optical communication device and then generating a digital error value which represents the difference between the two signals; (Page 4, Paragraph 0036)

D/A converting the digital error value of the temperature comparison unit into an analog signal; (Page 4, Paragraph 0036)

performing temperature compensation of the optical communication device in an analog method on the basis of a temperature compensation signal; (Page 5, Paragraph 0044) and

performing PID control using an analog method to generate the temperature compensation signal so as to urge the digital error value to zero. (Page 3, Paragraph 0035)

With regards to claims 2, 10,15,and 19, VanHoudt (USPUB 2002/0121094) teaches the two signals each comprise a voltage signal. (Page 4, Paragraph 0037)

With regards to claims 3, 7,11, 16 and 20, VanHoudt (USPUB 2002/0121094) teaches a high electric current drive unit for receiving the analog temperature compensation signal from the D/A converter, amplifying the temperature compensation signal and supplying the analog temperature compensation signal as high electric current to the temperature control unit. (Page 4, Paragraph 0036-37)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7, 14 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over VanHoudt (USPUB 2002/0121094).

With regards to claim 5, VanHoudt (USPUB 2002/0121094) teaches a low heat-generating temperature compensation device that allows an optical communication device to have a constant temperature characteristic regardless of change of

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environmental temperature, the low heat-generating temperature compensation device comprising:

- a temperature sensor that detects temperature at which the optical communication device is used; (Page 3, Paragraph 0029)

- a temperature comparison unit that generates an error value which represents the difference between a signal corresponding to the detected temperature and a signal corresponding to a reference temperature of the optical communication device; (Page 3, Paragraph 0035)

- an A/D converter that converts the error value of the temperature comparison unit into a digital error value; (Page 4, Paragraph 0040)

- a temperature control unit, which controls the temperature of the optical communication device on the basis of an analog temperature compensation signal; (Page 3, Paragraph 0035)

- a D/A converter that converts a digital temperature compensation signal into the analog temperature compensation signal; and (Page 4, Paragraph 0036)

- a digital PID control unit that performs PID control using a digital method to generate the digital temperature compensation signal in such a way that the digital error value is urged to zero. (Page 3, Paragraph 0035)

With regards to claim 18, VanHoudt (USPUB 2002/0121094) teaches a low heat-generating temperature compensation method, which allows an optical communication device to have a constant temperature characteristic regardless of change of

environmental temperature, the low heat-generating temperature compensation method comprising the steps of:

detecting a temperature at which the optical communication device is used (Page 3, Paragraph 0029) and performing digital signal processing of a signal corresponding to the detected temperature and a signal corresponding to a reference temperature of the optical communication device and then generating a digital error value which represents the difference between the two signals; (Page 4, Paragraph 0036)

A/D converting the error value of the temperature comparison unit into a digital signal; (Page 4, Paragraph 0040)

performing temperature compensation of the optical communication device using an analog method on the basis of an analog temperature compensation signal; (Page 5, Paragraph 0044)

D/A converting a digital temperature compensation signal to generate the analog temperature compensation signal; (Page 4, Paragraph 0036) and

performing PID control using a digital method to generate the digital temperature compensation signal in such a way that the digital error value is urged to zero. (Page 3, Paragraph 0035)

With regards to claims 6 and 19, VanHoudt (USPUB 2002/0121094) teaches the two signals each comprise a voltage signal. (Page 4, Paragraph 0037)

With regards to claim 14, VanHoudt (USPUB 2002/0121094) teaches detecting a temperature at which the optical communication device is used and calculating an error voltage value which is the difference between a voltage signal corresponding to the



detected temperature and a voltage signal corresponding to the reference temperature of the optical communication device, (Page 3, Paragraph 0035) and

A/D converting the error voltage value and performing digital signal processing of the error voltage value. (Page 4, Paragraph 0040)

VanHoudt (USPUB 2002/0121094) discloses the claimed invention except for an A/D converter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the A/D converter, in order to get a more precise evaluation of the error value. Since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70 C (CCPA 1950)

### ***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter: Claims 4, 8, 12, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fu (USPN 5,205,132) teaches a computer implemented method and system for precise temperature control of a device under test, Munks et al. (USPN 6,353,623) teaches a temperature-corrected wavelength monitoring and control


apparatus, Chan et al. (USPN 6,681,073) teaches a fiber optic power control systems and methods, and Pan (USPN 6,525,550) teaches a method and apparatus for temperature control.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aditya S Bhat whose telephone number is 571-272-2270. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aditya Bhat  
October 12, 2004

  
John Barlow  
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